

What is claimed is:

1. A radiation-alerting device for use with a cellular telephone comprising:

a radio frequency (RF) sampling unit adapted to measure the amplitude of an electromagnetic field generated by said cellular telephone over time, said RF
5 sampling unit is configured to be operable with any of a group of cellular communication systems including analog, digital, GSM, TDMA and CDMA;

a computing unit coupled to said RF sampling unit, said computing unit adapted to compute said amplitude over time and to compare with a predefined reference level; and

10 an alerting unit coupled to said computing unit and adapted to output an alert whenever said electromagnetic field exceeds said predefined reference level,

wherein said device is attachable to said cellular telephone.

2. The device according to claim 1, wherein said amplitude is formed by a modulation type of any of a group including continuous wave (CW), pulse and
15 spread spectrum.

3. The device according to claim 1, wherein said predefined reference level is any of a group including ICNIRP standard and ANSI/IEEE standard with relation to reference level and integration times.

4. The device according to claim 1 further comprising a miniature battery in
20 communication with said RF sampling unit, said computing unit and said alerting unit.

5. The battery according to claim 4, wherein said miniature battery is a rechargeable battery and further adapted to use radiation emitted from said cellular telephone for recharging.

6. The device according to claim 1, wherein said RF sampling unit is any of a group including a rectifier, high-efficiency low-loading turn and equivalent RF sampler.

5 7. The device according to claim 1, wherein said computing unit is a micro-controller.

8. The device according to claim 1, wherein said alerting unit comprises a liquid crystal display.

9. The device according to claim 1, wherein said alerting unit comprises a buzzer driven by an oscillator.

10 10. The device according to claim 1, wherein said alerting unit comprises a liquid crystal display and a buzzer.

11. The device according to claim 1, wherein said alerting unit comprises a light emitting diode display.

15 12. The device according to claim 1 further comprising means for supplying electrical power to said computing unit and to said alerting unit by utilizing RF radiation emitted by said cellular telephone.

13. The device according to claim 1, wherein said predefined reference level comprises at least one of a group of levels including a peak level, an average short term level and an average long term level.

20 14. The device according to claim 1, wherein said predefined reference level is related to the mode of operation of the user, wherein said mode of operation corresponds to the distance between an antenna coupled to said cellular telephone and the head of said user.

25 15. The device according to claim 14, further comprising a multi-state manual mode-switch configured to set said computing unit according to said mode of operation.

16. The device according to claim 1, further comprising a double-sided adhesive strip attachable to said device and said cellular telephone.

17. The device according to claim 1, wherein said device is embedded within a replaceable cover of said cellular telephone.

5 18. The device according to claim 1, further comprising a squelch circuit enabling said computing unit and said alerting unit with electrical power only when a certain threshold radiation is detected through said RF sampling unit.

19. The device according to claim 1, further comprising means for connecting said RF unit, said computing unit and said alerting unit to an external accessory
10 socket of said cellular telephone.

20. The device according to claim 19, wherein said means for connecting comprises a plug.

21. The device according to claim 20, wherein said plug is adapted to provide said direct current (DC) power from a battery of said cellular telephone battery.

15 22. The device according to claim 20, wherein said plug is engaging the "end" pins within said external accessory socket and said device further comprising an analog switch configured to disconnect ongoing calls by sending an "end" command through said "end" pins, when the radiation level exceeds said predefined reference level.

20 23. The device according to claim 20, wherein said device further comprising a direct current (DC) power supply adapted to draws power from the radiation emitted by said cellular telephone.

24. A radiation-alerting device for use with a cellular telephone comprising:

25 a radio frequency (RF) sampling unit adapted to measure the amplitude of an electromagnetic field generated by said cellular telephone over time, said RF sampling unit is configured to be operable with any of a group of cellular communication systems including analog, digital, GSM, TDMA and CDMA;

a computing unit coupled to said RF sampling unit, said computing unit adapted to compute said amplitude over time and to compare with a predefined reference level;

an alerting unit coupled to said computing unit and adapted to output an alert
5 whenever said electromagnetic field exceeds said predefined reference level; and

means for supplying electrical power to said computing unit and to said alerting unit by utilizing RF radiation emitted by said cellular telephone,

wherein said device is attachable to said cellular telephone.

25. The device according to claim 24, wherein said means for supplying
10 electrical power comprises any of a group including a high-efficiency low-loading turn coupled to a diode-capacitor rectifier and a parallel conductor coupled to said diode-capacitor rectifier.

26. The device according to claim 25, wherein said means for supplying electrical power further comprising a voltage regulator.

15 27. The device according to claim 24, wherein said means for supplying electrical power further comprising mechanical means for attaching said device to an antenna coupled to said cellular telephone.

28. A radiation-alerting battery for use with a cellular telephone comprising:

a current sampling unit adapted to measure indirectly the amplitude of an
20 electromagnetic field generated by said cellular telephone over time;

a computing unit coupled to said current sampling unit, said computing unit adapted to compute said amplitude over time and to compare with a predefined reference level; and

an alerting unit coupled to said computing unit and adapted to output an alert
25 whenever said electromagnetic field exceeds said predefined reference level.

29. The battery according to claim 28, wherein said predefined reference level is any of a group including ICNIRP standard and ANSI/IEEE standard with relation to reference level and integration times.

30. The battery according to claim 28, wherein said current sampling unit is a sampling resistor connected to a (direct current) DC amplifier.

31. The battery according to claim 28, wherein said computing unit is a controller.

32. The battery according to claim 31, wherein said controller is pre-programmed to calculate the accumulated radiation as proportional to the energy consumed from said battery over time.

33. The battery according to claim 28, wherein said alerting unit is a buzzer.

34. A radiation-alerting cellular telephone comprising:

an RF sampling unit adapted to measure the amplitude of an electromagnetic field generated by said cellular telephone over time;

a computing unit coupled to said RF sampling unit, said computing unit adapted to compute said amplitude over time and to compare with a predefined reference level; and

an alerting unit coupled to said computing unit and adapted to output an alert whenever said electromagnetic field exceeds said predefined reference level.

35. The cellular telephone according to claim 34, wherein said predefined reference level is any of a group including ICNIRP standard and ANSI/IEEE standard with relation to reference level and integration times.

36. The cellular telephone according to claim 34, wherein the operation of said alerting unit is determined by a user from a menu item available on said cellular telephone.

37. The cellular telephone according to claim 34, wherein said RF sampling unit is a sampler coupled to an antenna of said cellular telephone and adapted to feed an existing controller chip.

5 38. The cellular telephone according to claim 34, wherein said RF sampling unit is a sampling tap located either before an existing pre-amplifier coupled to an antenna or in between an existing amplifier stage and said preamplifier.

39. The cellular telephone according to claim 34, wherein said computing unit is an existing controller chip of said cellular telephone.

10 40. The cellular telephone according to claim 34, wherein said alerting unit is at least one of a group including a standard buzzer integrated in said cellular telephone, a speaker, a liquid crystal display and any combination thereof.

41. A radiation-alerting device for use with a cellular telephone comprising:

radio frequency (RF) sampling means for measuring the amplitude of an electromagnetic field generated by said cellular telephone over time;

15 computing means for computing said amplitude over time and to compare with a predefined reference level; and

alerting means for outputting an alert whenever said electromagnetic field exceeds said predefined reference level,

wherein said device is attachable to said cellular telephone.